IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A method for manufacturing a monocrystalline thin film, comprising ~~the steps of~~;

(a) preparing a monocrystalline substrate;

(b) forming a sacrificial layer containing crystal defects on the monocrystalline substrate using the same material by epitaxial growth;

(c) forming a monocrystalline thin film containing crystal defects on the sacrificial layer using the same material by epitaxial growth, the number of the crystal defects being smaller than that of the sacrificial layer; and

(d) etching the sacrificial layer so as to form a monocrystalline thin film containing a small number of crystal defects.

Claim 2 (Currently Amended): The method for manufacturing a monocrystalline thin film, according to Claim 1, further comprising ~~the step of~~ eliminating crystal defects present on the surface of the sacrificial layer following the [[step]] (b).

Claim 3 (Currently Amended): The method for manufacturing a monocrystalline thin film, according to Claim 1 [[or 2]], wherein the monocrystalline substrate is a monocrystalline silicon substrate, the sacrificial layer is a silicon sacrificial layer, and the monocrystalline thin film is a monocrystalline silicon thin film.

Claim 4 (Currently Amended): The method for manufacturing a monocrystalline thin film, according to Claim 1 [[or 2]], wherein the monocrystalline substrate is a monocrystalline GaAs substrate.

Claim 5 (Currently Amended): The method for manufacturing a monocrystalline thin film, according to Claim 1 [[or 2]], wherein the monocrystalline substrate is a monocrystalline MgO substrate.

Claim 6 (Currently Amended): The method for manufacturing a monocrystalline thin film, according to Claim 1, wherein the [[step]] (b) is performed by a physical vapor deposition method or a chemical vapor deposition method at a temperature of 400 to 1,200°C, whereby a silicon sacrificial layer containing crystal defects is epitaxially-grown.

Claim 7 (Currently Amended): The method for manufacturing a monocrystalline thin film, according to ~~Claims 3 or 6~~ Claim 3, wherein the crystal defects ~~include~~ comprise twins, vacancies, interstitial atoms, edge displacements , [[and]] or screw displacements.

Claim 8 (Currently Amended The method for manufacturing a monocrystalline thin film, according to ~~one of Claims 3, 6, and 7~~ Claim 3, wherein the number density of the crystal defects is $1/\mu m^2$ to $1/nm^2$ at [[the]] a boundary between the monocrystalline silicon substrate and the silicon sacrificial layer.

Claim 9 (Currently Amended): The method for manufacturing a monocrystalline thin film, according to ~~one of Claims 3 and 6 to 8~~ Claim 3, wherein twins exist at [[the]] a

boundary between the monocrystalline silicon substrate and the silicon sacrificial layer at a number density of $1/\mu m^2$ to $1/nm^2$.

Claim 10 (Currently Amended): The method for manufacturing a monocrystalline thin film, according to ~~one of Claims 3 and 6 to 9~~ Claim 3, further comprising, following the [[step]] (b), ~~the step of~~ performing thermal annealing in a reducing atmosphere at a temperature of 1,000 to 1,400°C to eliminate crystal defects on [[the]] a surface of the silicon sacrificial layer.

Claim 11 (Currently Amended): The method for manufacturing a monocrystalline thin film, according to Claim 10, wherein after the thermal annealing, [[the]] a number density of twins present on the surface of the silicon sacrificial layer is one hundredth or less of [[that]] a number density of twins present at [[the]] a boundary between the monocrystalline silicon substrate and the silicon sacrificial layer.

Claim 12 (Currently Amended): The method for manufacturing a monocrystalline thin film, according to ~~one of Claims 3 and 6 to 11~~ Claim 3, wherein the [[step]] (c) is performed by a physical vapor deposition method or a chemical vapor deposition method at a temperature of 1,000 to 1,400°C, whereby the monocrystalline silicon thin film containing a small number of crystal defects is formed by epitaxial growth.

Claim 13 (Currently Amended): The method for manufacturing a monocrystalline thin film, according to ~~one of Claims 3 and 6 to 12~~ Claim 3, further comprising, following the [[step]] (c), ~~the steps of~~: supporting the monocrystalline silicon thin film by a support base

material, and then etching the silicon sacrificial layer so as to manufacture the monocrystalline silicon thin film.

Claim 14 (Currently Amended): The method for manufacturing a monocrystalline thin film, according to ~~one of Claims 3 and 6 to 13~~ Claim 3, further comprising ~~the step of~~ forming holes in the monocrystalline silicon substrate at intervals.

Claim 15 (Currently Amended): The method for manufacturing a monocrystalline thin film, according to ~~one of Claims 3 and 6 to 14~~ Claim 3, wherein [[the]] a thickness of the silicon sacrificial layer is set to 100 nm or less so that a roughness of [[the]] a bottom surface of the monocrystalline silicon thin film is reduced to 100 nm or less.

Claim 16 (Currently Amended): The method for manufacturing a monocrystalline thin film, according to ~~one of Claims 3 and 6 to 14~~ Claim 3, wherein [[the]] a thickness of the silicon sacrificial layer is set to 100 nm or more so that [[the]] a bottom surface of the monocrystalline silicon thin film has a texture structure of 100 nm or more.

Claim 17 (Currently Amended): The method for manufacturing a monocrystalline thin film, according to ~~one of Claims 3 and 6 to 16~~ Claim 3, further comprising ~~the step of~~ forming a texture structure on [[the]] a the surface of the monocrystalline silicon substrate.

Claim 18 (Currently Amended): The method for manufacturing a monocrystalline thin film, according to ~~one of Claims 3 and 6 to 17~~ Claim 3, wherein the etching of the silicon sacrificial layer is performed ~~using~~ with a mixed solution of hydrofluoric acid and an oxidizing agent.

Claim 19 (Currently Amended): A monocrystalline thin film device obtained by the method for manufacturing a monocrystalline thin film, according to ~~one of Claims 1 to 5~~ Claim 1.

Claim 20 (Currently Amended): A monocrystalline thin film device obtained by the method for manufacturing a monocrystalline silicon thin film, according to ~~one of Claims 3 and 6 to 18~~ Claim 3.

Claim 21 (Original): The monocrystalline thin film device according to Claim 20, wherein the monocrystalline silicon thin film is a photovoltaic layer of solar-cells.

Claim 22 (Currently Amended): The monocrystalline thin film device according to Claim 20, wherein the monocrystalline silicon thin film is a monocrystalline silicon thin film ~~used for~~ of SOI.

Claim 23 (Currently Amended): A method for manufacturing a solar-cell monocrystalline silicon thin film, comprising ~~the steps of~~;

(a) preparing a monocrystalline silicon substrate;

(b) forming an epitaxial sacrificial layer on the substrate;

(c) rapidly forming a monocrystalline silicon thin film containing a smaller number of crystal defects than the sacrificial layer on the sacrificial layer by epitaxial growth using the same material as that of the sacrificial layer; and

(d) etching the sacrificial layer so as to manufacture a monocrystalline silicon thin film ~~used as~~ to form a photovoltaic layer ~~for solar-cells~~ in a solar-cell.

Claim 24 (Canceled).

Claim 25 (Currently Amended): The method for manufacturing a solar-cell monocrystalline silicon thin film, according to Claim 23 [[or 24]], wherein the rapid epitaxial growth of the monocrystalline silicon thin film is performed by a physical vapor deposition.

Claim 26 (Currently Amended): The method for manufacturing a solar-cell monocrystalline silicon thin film, according to ~~one of Claims 23 to 25~~ Claim 23, wherein the sacrificial layer is a crystal silicon ~~containing~~ comprising crystal defects.

Claim 27 (Currently Amended): The method for manufacturing a solar-cell monocrystalline silicon thin film, according to Claim 26, wherein the crystal defects ~~includes~~ have twins, vacancies, interstitial atoms, edge displacements, [[and]]or screw displacements.

Claim 28 (Currently Amended): The method for manufacturing a solar-cell monocrystalline silicon thin film, according to Claim 26 [[or 27]], wherein [[the]] a number density of the crystal defects is in a range from $1/\mu m^2$ to $1/nm^2$ at [[the]] a boundary between the monocrystalline silicon substrate and the silicon sacrificial layer.

Claim 29 (Currently Amended): The method for manufacturing a solar-cell monocrystalline silicon thin film, according to ~~one of Claims 25 to 28~~ Claim 25, further comprising ~~the step of~~ eliminating crystal defects present on [[the]] a surface of the sacrificial layer following the [[step]] (b).

Claim 30 (Currently Amended): The method for manufacturing a solar-cell monocrystalline silicon thin film, according to ~~one of Claims 23 to 25~~ Claim 23, wherein the sacrificial layer has [[is]] highly doped monocrystalline silicon.

Claim 31 (Original): The method for manufacturing a solar-cell monocrystalline silicon thin film, according to Claim 30, wherein a dopant doped in the highly doped monocrystalline silicon is an element of group III or V.

Claim 32 (Currently Amended): The method for manufacturing a solar-cell monocrystalline silicon thin film, according to Claim 30 [[or 31]], wherein [[the]] a dopant concentration of the highly doped monocrystalline silicon is 10^{18} atoms/cm^3 or more.

Claim 33 (Currently Amended): The method for manufacturing a solar-cell monocrystalline silicon thin film, according to ~~one of Claims 30 to 32~~ Claim 30, wherein a dopant source is supplied onto [[the]] a surface of the monocrystalline silicon substrate, whereby the highly doped monocrystalline silicon sacrificial layer is formed.

Claim 34 (Currently Amended): The method for manufacturing a solar-cell monocrystalline silicon thin film, according to ~~one of Claims 30 to 32~~ Claim 30, wherein a silicon source and a dopant source are simultaneously supplied onto the monocrystalline silicon substrate, whereby the highly doped monocrystalline silicon sacrificial layer is formed.

Claim 35 (Currently Amended): The method for manufacturing a solar-cell monocrystalline silicon thin film, according to ~~one of Claims 30 to 32~~ Claim 30, wherein a

silicon source and a dopant source are supplied onto the monocrystalline silicon substrate while [[the]] a ratio between the two sources is controlled with time so as to form a highly doped layer and a lightly doped layer in a silicon film which is rapidly epitaxially-grown, and the former is used as the sacrificial layer and the latter is used as the monocrystalline silicon thin film for a photovoltaic layer of solar cells.

Claim 36 (Currently Amended): The method for manufacturing a solar-cell monocrystalline silicon thin film, according to Claim 23 ~~one of Claims 23 to 25~~, wherein the sacrificial layer comprises a compound crystal ~~containing~~ having silicon.

Claim 37 (Currently Amended): The method for manufacturing a solar-cell monocrystalline silicon thin film, according to Claim 36, wherein the compound crystal ~~containing~~ having silicon is a metal silicide ~~including~~ comprising $CoSi_2$, $NiSi_2$, or $CrSi_2$.

Claim 38 (Currently Amended): The method for manufacturing a solar-cell monocrystalline silicon thin film, according to ~~one of Claims 23 to 25~~ Claim 23, wherein the sacrificial layer comprises a crystal containing no silicon.

Claim 39 (Currently Amended): The method for manufacturing a solar-cell monocrystalline silicon thin film, according to ~~one of Claims 23 to 38~~ Claim 23, wherein the sacrificial layer is etched ~~using~~ with an aqueous solution ~~containing~~ comprising hydrofluoric acid, whereby the monocrystalline silicon thin film used as a photovoltaic layer of solar cells is manufactured.

Claim 40 (Currently Amended): The method for manufacturing a solar-cell monocrystalline silicon thin film, according to ~~one of Claims 23 to 39~~ Claim 23, further comprising, following the [[step]] (c), ~~the steps of:~~ supporting the monocrystalline silicon thin film used as a photovoltaic layer of solar cells by a support base material, and then etching the silicon sacrificial layer, whereby the monocrystalline silicon thin film used as a photovoltaic layer of solar cells is manufactured.

Claim 41 (Currently Amended): The method for manufacturing a solar-cell monocrystalline silicon thin film, according to ~~one of Claims 23 to 40~~ Claim 23, further comprising ~~the step of~~ forming holes in the monocrystalline silicon substrate at intervals.

Claim 42 (Currently Amended): The method for manufacturing a solar-cell monocrystalline silicon thin film, according to ~~one of Claims 23 to 41~~ Claim 23, further comprising ~~the step of~~ forming a texture structure on [[the]] a surface of the monocrystalline silicon substrate.

Claim 43 (Currently Amended): A monocrystalline silicon thin film solar cell obtained by the method for manufacturing a solar-cell monocrystalline silicon thin film according to ~~one of Claims 23 to 42~~ Claim 23.